SANTA MONICA BAY NATIONAL ESTUARY PROGRAM

Semi-Annual Report

1 April 2019 – 30 September 2019

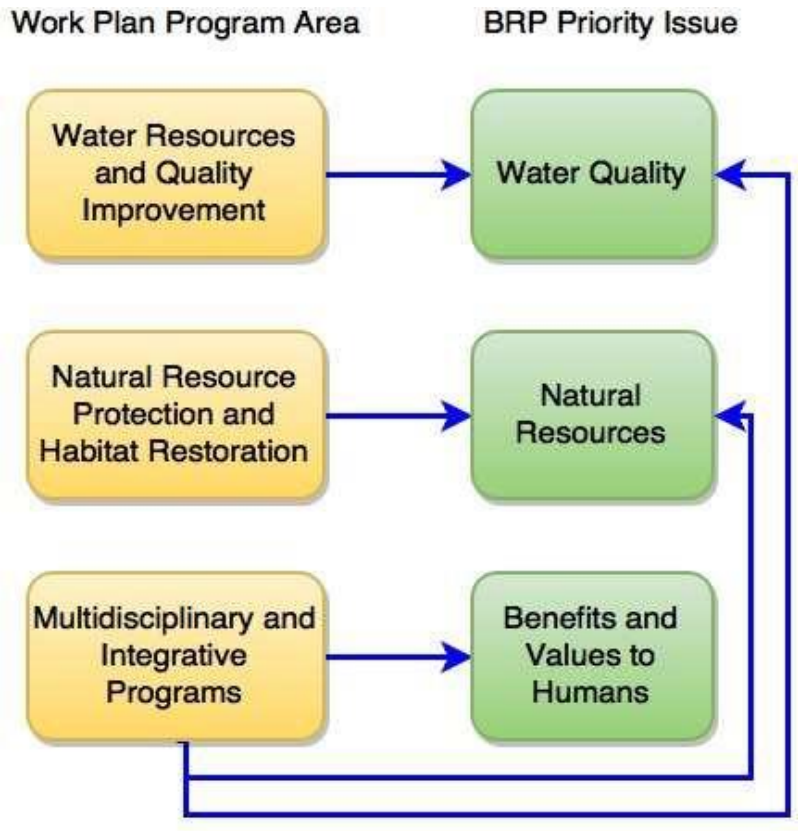
Report Date: 20 November 2019

Prepared for the United States Environmental Protection Agency

Semi-Annual Report Overview and Structure

This semi-annual report outlines and provides an update for each of the FY19 Work Plan tasks for the time period 1 April through 30 September 2019, the second and final semi-annual reporting period for FY19. Many of the FY19 tasks continue past efforts. Each table summarizes the current status and a synthesis of updates for each task. For some tasks requiring more description or discussion, an extended narrative follows the table for that task. Note that the FY19 Work Plan was still based on the 2013 Bay Restoration Plan (BRP) and not the October 2018 Comprehensive Conservation and Management Plan (CCMP) Action Plan. The FY20 Work Plan and its semi-annual reports will be based on the 2018 CCMP Action Plan (starting April 2020).

The scope of this semi-annual report is broad and structured into three overarching Program Areas to match the structure of the FY19 Work Plan. The Program Area identified as Water Resources and Quality Improvement relates specifically to the BRP Priority Issue: Water Quality; the Program Area identified as Natural Resource Protection and Habitat Restoration relates specifically to the BRP Priority Issue: Natural Resources. There has also been focus and efforts in FY19 on implementing programs that interconnect and integrate issues across traditional boundaries such as climate change and comprehensive monitoring. These interdisciplinary issues that cover a broad range of topics are categorized into the Work Plan Program Area: Multidisciplinary and Integrative Programs. The diagram below illustrates the connection between SMBNEP's FY19 Work Plan and BRP 2013 Priority Issues.



Each of the three Work Plan Program Areas (semi-annual reporting Program Areas) are further categorized into broad Goals and can be identified as 1.1, 1.2, etc. The table below illustrates each of the three Work Plan Program Areas and the nine Goals identified as priorities for FY19.

Work Plan Program Area	Work Plan Goal
1. Water Resources and Quality Improvement	1.1 Support regional water quality improvement planning and policies
	1.2 Improve water quality through pollution control and prevention
2. Natural Resources and Habitat Protection	2.1 Support natural resource protection policies and programs
	2.2 Restore wetlands and streams
	2.3 Restore coastal bluffs, dunes, and sandy beaches
	2.4 Restore intertidal and subtidal habitats
3. Multidisciplinary and Integrative Programs	3.1 Promote climate change vulnerability assessment and adaptation
	3.2 Conduct public outreach
	3.3 Support planning, monitoring, and organizational management

The Work Plan Goals are further divided into Objectives (at the level of 1.1a, 1.1b, etc.). Each of these Objectives contain a series of tasks identified within a table that will take strides towards reaching the Objective. This semi-annual report provides an update on each of the FY19 Work Plan tasks for all Objectives (i.e., right-hand column of each table, “Semi-Annual Report Update”). The FY19 Work Plan Goals and Objectives are both cross-referenced within this document to the associated BRP Goal or Objective. For additional details at the goal or objective level, refer to the final FY19 Work Plan. Additionally, some tasks are of a larger scope or have had significant achievements within this reporting period, and as such have a more detailed narrative summary after the table of tasks in each section.

1. Water Resources and Quality Improvement

Tasks and activities in this section of the semi-annual report are intended to advance the goals, objectives, and milestones that address water quality-related issues, as laid out in Priority Issue 1, Water Quality, of the BRP. For narrative details on each Objective and task, refer to the final FY19 Work Plan.

1.1 Support regional water quality improvement planning and policies

This FY19 Work Plan objective supports BRP Goal 1: Improve water quality through enhancement of current regulatory framework and collaborative, integrated watershed wide planning and implementation, and Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.1a Implement storm water pollution control BMP funded through Prop. 84 bond and other grant programs; BRP 1.1				
Oversee pollution control BMPs funded through Prop. 84 bond grants	SMBRC	Participate	Ongoing	SCC staff, in consultation with SMBRC staff, developed grant agreements for the Prop. 12 projects (GB approved in Dec 2018 and SCC approved in Mar 2019); several grants were initiated (four of the 10 Prop. 12 projects are included under this task – see narrative below)
1.1b Promote and participate in integrated watershed-wide water quality improvement planning and implementation; BRP 1.5, 4.6				
Implement water quality planning and funding projects and programs	SMBRC, TBF	Promote	Ongoing	TBF continued a partnership with City of Manhattan Beach to help support planning for the Manhattan Beach Infiltration Trench Project
Participate in IRWMP to provide technical support	SMBRC	Participate	Ongoing	Participated in IRWMP Leadership Committee meetings as open space representative

Summary Narratives

Prop. 12 Grants (subset): In December 2018, the Governing Board recommended 10 projects for Prop. 12 funding to the California State Coastal Conservancy (SCC). All ten projects were subsequently approved for funding by SCC in March 2019. Four of those projects fall under Task 1.1a:

- *Monteith Park and View Park Green Alley (Los Angeles County)* – The project consists of constructing an infiltration system and recreational and aesthetic improvements at Monteith Park and at View Park alley. Stormwater will be diverted into the infiltration system and be allowed to percolate into the ground. The Project will prevent potentially polluted runoff from being discharged downstream thus improving the water quality in the Ballona Creek Watershed.

    - *Status update:* Grant agreement finalized and scheduled for Coastal Conservancy Board approval in January 2020.

- *Pure Water Project Las Virgenes-Triunfo (Las Virgenes Municipal Water District)* – The project will construct a 100 gallon per minute, indirect potable water reuse demonstration project for reservoir augmentation that will produce up to six million gallons of local, drought resistant water supply per day, while improving in-stream habitat. The demonstration facility is needed to test the advanced microfiltration, reverse osmosis, ultraviolet light disinfection, and oxidation components of a Pure Water advanced treatment facility prior to implementation of a full-scale project.

    - *Status update:* Grant agreement finalized and executed. Project under construction.

- *Beach Cities Multi-Benefit Green Streets Project (Torrance, Redondo Beach, Manhattan Beach, Hermosa Beach)* – The project is to design and construct Green Street infrastructure to help meet water quality objectives set for the Santa Monica Bay Beaches. The Beach Cities will retrofit existing impervious areas within the public parkways and right-of-ways using green infrastructure technologies such as porous pavement, catch basin trash screens, bio-filtration/bio-retention systems and dry wells.

    - *Status update:* Grant agreement drafted. Work continued with the City of Torrance to finalize the grant agreement and MOU between beach cities.

- *Paramount Ranch Stormflow and Sediment Reduction Project (National Park Service)* – The project reduce sediment, capture and re-use stormwater, restore riparian habitat, increase natural flood attenuation, and protect historic structures at National Park Service's Paramount Ranch on Medea Creek, a tributary to Malibu Creek. The project includes stormwater capture BMPs, riparian restoration, pedestrian and equestrian bridges, and public education.

- *Status update:* Project was delayed due to Woolsey Fire impacts to project. Prop 12 funds reallocated from implementation to planning/design. Grant agreement being drafted.

Implement Water Quality Planning: TBF continued a partnership with the City of Manhattan Beach to help support their Manhattan Beach Infiltration Trench Project. The project will capture, pretreat, and infiltrate dry and wet weather runoff from ~1500-acre drainage area tributary to the high priority 28th Street storm drain outfall on the beach.

1.2 Improve water quality through pollution control and prevention

This FY18 Work Plan objective supports BRP Goal 2: Improve water quality through pollution prevention and source control.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.2a Implement green infrastructure and LID projects; BRP 2.1				
Implement the rain garden pollutant tracking study	TBF	Participate	Ongoing	TBF, in partnership with CRI, continued preparation of a draft manuscript highlighting results of the stormwater pollutant study, including running new analyses; ongoing research continued for the CRI plant / metal uptake study; results from the plant study were presented in an oral presentation at the Southern California Academy of Sciences annual meeting in May 2019
1.2b Implement the Boater Education Program; BRP 2.4				
Conduct pumpout monitoring	TBF	Lead	Ongoing	Completed quarterly monitoring of 73 Southern California pumpouts using Pumpout Nav mobile app; finalized quarterly monitoring reports; posted and distributed 2018 annual Pumpout Report
Implement boating community engagement program	TBF	Lead	Ongoing	Implemented three dockwalker trainings and trained 59 individuals as dockwalkers; developed and distributed four dockwalker newsletters; developed and distributed Spring and Summer issues of Changing Tide newsletter; implemented Honey Pot Day program in which 111 boaters participated and over 1,800 gallons of sewage was properly disposed; conducted one clean boating presentation; attended four community engagement events

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Update the CVA Vessel Waste Disposal Plan	TBF	Lead	Ongoing	Completed first and second draft of CVA Vessel Waste Disposal Plan
1.2c Implement the Restaurant Engagement Program; BRP 2.2, 2.5, and 14.2				
Implement Clean Bay Certified program	TBF	Lead	Ongoing	Continued program coordination and participant support; updated program webpage; hosted 2019 partners meeting and inspector training
Implement community composting and organics recycling outreach	TBF	Lead	Ongoing	Built third compost hub at Environmental Charter High School, Lawndale; partnered with two additional restaurants to participate in program; partnered with Angel City Lumber as a source of 'browns' for all three compost hubs; continued support for first two compost hub location partners; diverted a collective 11,457 lbs. of food waste from landfills; participated in LA Food Waste Rescue and Prevention Working Group
Single Use Disposable Products Reduction Initiative	TBF	Lead	Ongoing	Applied for a grant and received funding for continuation of program and partnership with Clean Water Action / Clean Water Fund.

Summary Narratives

Boater Education Program: TBF's Boater Education and Outreach Program was initiated in 1996 with a Clean Vessel Act grant and has since worked with the Southern California coastal boating communities on public engagement campaigns that decrease boat related pollution. The program evolves each year with new and innovative ways to promote clean boating. Over the last two decades, TBF has successfully worked to support a clean boating community in Southern California, engaging hundreds of thousands of boaters using a multi-faceted strategy based on: 1) supporting the provision of facilities like sewage and bilge pumpout stations and oil absorbent pad exchange centers; 2) creation of tools like the Southern California Boater's Guide, When Nature Calls sewage guide, Boater Kits, and educational videos; 3) a partnership approach that galvanizes statewide clean boating messages in part with San Francisco Estuary Partnership, Morro Bay National Estuary Program, and California's Boating Clean and Green Program via projects like the Pumpout Nav app, pumpout monitoring, Dockwalker Program, and California Clean Boating Network (CCBN), and 4) strong relationships with the boating industry, boating public, marinas, yacht clubs, and other organizations throughout the State.

2. Natural Resource Protection and Habitat Restoration

Tasks and activities in this section of the Annual Work Plan are intended to advance the goals, objectives, and milestones that address natural resources-related issues, as laid out in Priority Issue 2, Natural Resources, of the BRP. The BRP addresses the natural resources-related issues first by supporting better information gathering and implementation of more effective protection policies, regulations, and management programs (Goal 4), and by laying out specific steps and projects needed for protection and restoration for each of the major habitats in the Bay (Goals 7–10). For narrative details on each Objective and task, refer to the final FY19 Work Plan.

2.1 Support natural resource protection policies and programs

This FY19 Work Plan objective supports BRP Goal 4: Create/support policies and programs to protect natural resources and Goal 13: Increase public access to beaches and open space.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.1a Promote marine ecosystem protection; BRP 4.2, 4.3, 4.4, 11.4				
Implement ocean vessel aerial monitoring project	TBF	Lead	Ongoing	Completed four survey flights including two complete surveys (north transect and south transect) in spring and summer quarters
Participate in MPA Collaborative	TBF	Participate	Ongoing	Participated in bi-annual meetings; MPA outreach and ROV training conducted on 15 August in partnership with MPA Collaborative and CRI
Promote sustainable fishery outreach	SMBRC, TBF	Promote	Ongoing	Sent partner, Marina Del Rey Anglers, information on grant opportunities for youth fishing programs
Monitor Acoustic Telemetry Network	TBF	Participate	Ongoing	Detected four white sharks and three other species of tagged fish (narrative below)

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Remotely Operated Vehicle (ROV) surveys	TBF	Lead	Ongoing	Conducted ROV training with MPA Collaborative (see MPA, above); worked with CRI interns to calibrate, clean, and update the ROV, R2Deep2; participated in several meetings to develop research opportunities for its use
2.1b Support stream protection and policies; BRP 4.1				
Promote creation and adoption of stream protection ordinances	TBF	Promote	Ongoing	Opportunistically participated in conversations with other groups to facilitate progress

Summary Narratives

Ocean Vessel Aerial Monitoring: Since 2010, TBF has partnered with LightHawk to collect data on recreational and commercial vessel distribution and activity relative to the South Coast Marine Protected Areas (MPA) network. This work includes data from 2008 through 2019 collected via aerial surveys to understand changes in the use of different habitats by fishermen as a result of MPA implementation. This project informs decision makers, enforcement officials, resource managers and other stakeholders regarding types, distribution and activities of vessels in Southern California coastal waters. TBF expects to continue quarterly surveys through 2019 to collect data and describe any emerging trends in the distribution, action, or type of vessels operating along the mainland coast of southern California. During this time period, four surveys were conducted.

Acoustic Telemetry Network: Four acoustic receivers were purchased by TBF in late 2016 to improve the coverage of the Southern California Acoustic Telemetry Network, led by Dr. Chris Lowe at CSU Long Beach. Three receivers were first deployed in May 2017 to sites in the northern Santa Monica Bay, with the fourth subsequently included within the network. Currently, there are eight receivers deployed throughout the Santa Monica Bay to inform SMBNEP of the movements, positions, and permanence of great white sharks, giant sea bass, and other species of interest. Data generated by this expansion of the network will improve protection and understanding for these species and contribute to the Comprehensive Monitoring Program. The receivers were downloaded bi-monthly, cleaned, and redeployed to their moorings. During this reporting period, the receivers detected multiple sightings of school sharks (Galeorhinus galeus), shovelnose guitarfish (Rhinobatos productus), and giant sea bass (Stereolepis gigas). Additionally, four individual white sharks (Carcharodon carcharias) were detected throughout the Bay across the past six months. Quarterly species count updates are provided by Dr. Lowe's lab at CSULB to TBF.

2.2 Restore wetlands and streams

This FY19 Work Plan objective supports BRP Goal 7: Restore wetlands, streams, and riparian zones.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.2a Facilitate restoration of priority wetlands; BRP 7.1, 7.2, 7.5-7.8				
Implement Ballona Reserve community stewardship and invasive species removal project	TBF	Lead	Ongoing	During this period, two community restoration events were held as part of National Estuaries Week and volunteers participated in removing invasive vegetation and maintaining the restoration site; TBF publicly released the Ballona Wetlands Restoration, Community Iceplant Removal Project: Year 3 Annual Report and posted to TBF's website; continued monitoring revegetation efforts to help promote native vegetation establishment; TBF also initiated a grant through Prop. 12 to expand restoration activities within the permitted project site
Ballona Reserve – Support Restoration Planning	TBF	Support	Complete	During this time period, TBF staff responded to technical questions from CDFW and the restoration planning partners; CDFW and Army Corps continued drafting the Final EIS/R for the Ballona Wetlands Restoration Project
Conduct Malibu Lagoon post-restoration maintenance and monitoring	SMBRA, TBF	Lead	Ongoing	Completed the Malibu Lagoon Restoration and Enhancement Project: Final Comprehensive Monitoring Report (Year 6) and posted publicly on TBF's website; jointly released a press release with State Parks; hosted one community restoration event in which 26 volunteers participated

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Implement Level 3 regional wetland monitoring program	SMBRA, TBF	Lead	Ongoing	Continued meetings with the project team to update the CA Estuarine Wetland Monitoring Manual and Standard Operating Procedures; continued regional data consolidation, including vegetation, water quality, invertebrates, fish, and birds; communicated with partners and as part of regional and statewide stakeholder wetland monitoring groups; begin drafting the final products for the grant (ending Oct 2019)
2.2b Facilitate stream restoration and fish barrier removal; BRP 7.3, 7.4				
Conduct Stone Canyon Creek maintenance	TBF	Lead	Ongoing	During this period, TBF continued to coordinate with UCLA faculty to explore opportunities to incorporate the site into restoration ecology courses and boost student participation and stewardship; no restoration events were held
Conduct mudsnail surveys and research in the Northern Bay watershed	SMBRC, TBF	Lead	Ongoing	No activity this reporting period
Support reintroduction of red-legged frogs in the Santa Monica Mountains	SMBRC TBF	Support	Ongoing	NPS was awarded Prop. 12 funding for the restoration of the California red-legged frog population in the Santa Monica Mountains; during this time period, the grant agreement was finalized through SCC and sent to NPS for signature in late September

Summary Narratives

Ballona Reserve Community Stewardship Project: During this period, TBF continued maintaining and expanding the community restoration site at the reserve. Two community restoration events were held as part of official National Estuaries Week events, focused on removing non-native, invasive vegetation from the site. Due to permit restrictions to prevent large community restoration events during bird nesting season, TBF primarily held small restoration and monitoring activities with interns during this time period. Additionally, TBF continued monitoring of revegetation efforts in target areas of the restoration site. Ongoing scientific monitoring continued in accordance with the Implementation and Monitoring Plan. The Ballona Wetlands Restoration, Community Iceplant Removal Project: Year 3 Annual Report was completed and released in August 2019 and posted to TBF's website.

A grant was also initiated through Prop. 12 to support expansion of the project into adjacent, permitted restoration areas. TBF and FBW will conduct restoration activities within the Reserve with a focus on managing non-native vegetation through community restoration events and conducting supplemental revegetation informed by scientific monitoring. The two-year effort will allow both partners to work with youth and community participants to remove iceplant and other invasive, non-native plants from targeted areas, restoring two acres of unique wetland and dune/upland habitat within the Reserve. During this time period, baseline monitoring began for the Prop. 12 grant area.

CA Red-legged Frogs: The California Red-legged Frog (CRLF; *Rana draytonii*) Reestablishment Project builds on an earlier effort by National Park Service (NPS) to reintroduce the CRLF to the Santa Monica Mountains, and consists of actions to establish self-sustaining populations of CRLF in Santa Monica Mountain streams. The proposed NPS project, recently funded through the Prop. 12 program, has been modified to address impacts from the recent Woolsey fire. The project includes monitoring and restoring burned sites to implement the reintroduction protocol. NPS will translocate partial egg masses from a "source" population to suitable stream sites within the Santa Monica Mountains. Eggs and tadpoles will be kept in predator-proof pens located on site in the translocation streams. The pens will be monitored twice weekly. Once the tadpoles are large enough to have a better chance of avoiding predation, they are released. NPS conducts year-round monitoring of the translocation streams for CRLF at all life stages. During this time period, the grant agreement was finalized and sent to the lead agency (NPS) for signature in late September 2019.

Malibu Lagoon Monitoring: During this time period, TBF completed the scientific monitoring program at Malibu Lagoon, released the Malibu Lagoon Restoration and Enhancement Project: Final Comprehensive Monitoring Report (Year 6), released a press release in partnership with State Parks, and posted both documents publicly on TBF's website. The report assesses the post-restoration conditions of Malibu Lagoon across approximately six years of monitoring by evaluating a suite of biological, chemical, and physical parameters throughout the site.

The restoration project has been determined to be wholly successful as assessed against defined project goals, performance standards, and success criteria outlined in California Coastal Commission CDP No. 4-07-098 and supporting documentation, including monitoring plans. When compared to pre-restoration data, post-restoration results show improved water quality, improved circulation, removal of dead zones and excess sedimentation issues, and a diverse native ecosystem resilient to impacts. A clear pattern in the water quality data indicates that lowering the lagoon elevation, creating a wider single main channel directed more towards the incoming tide, orienting channel configurations in line with prevailing wind patterns, and removing the pinch points (i.e., bridges) led to an increase in circulation both in an open and closed berm lagoon condition. Vertical profile mixing was an additional water quality indicator of a well-functioning post-restoration system. California Rapid Assessment Method (CRAM) surveys were a good indicator of the consistently increasing condition of the post-restoration wetland habitat areas. Each component of the monitoring is summarized in detail in the final report.

TBF is also continuing to participate in a post-fire collaborative stakeholder group to consolidate and prioritize monitoring efforts as well as communicating with agencies and municipalities to coordinate recovery efforts.

2.3 Restore coastal bluffs, dunes, and sandy beaches

This FY19 Work Plan objective supports BRP Goal 8: Restore coastal bluffs, dunes, and sandy beaches.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.3a Restore coastal dune and bluff habitats; BRP 8.1				
Restore LAX Dunes	TBF	Lead	Ongoing	TBF continued hosting monthly restoration and education events during this period: ten events, including Coastal Clean-up Day, were held in which 600 volunteers removed invasive plants; TBF initiated a three-year contract by LAWA to continue habitat maintenance and restoration work; TBF presented LAX Dunes history and restoration efforts to the Los Angeles / Santa Monica Mountains Chapter of the California Native Plant Society
2.3b Protect and restore sandy beach habitats; BRP 8.2				
Implement Beach Restoration Projects to Improve Coastal Resilience	TBF	Lead	Ongoing	Continued long-term monitoring at the Santa Monica Beach Restoration Pilot Project in accordance with permits; continued Malibu Living Shoreline Project, Los Angeles Living Shoreline Project, and Manhattan Beach Dune Restoration Project (narrative details below)

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Conduct Beach Monitoring and Research	SMBRC, TBF	Facilitate	Ongoing	TBF, in partnership with CRI, continued implementing the beach characterization study; conducted monitoring at three new sites, conducted data analyses; presented at the Southern California Academy of Sciences annual meeting (May 2019) and at the McNair Scholars conference (September 2019); began planning for the site suitability analyses project

Summary Narratives

LAX Dunes: During this period, TBF initiated a three-year contract through LAWA to continue habitat restoration and maintenance work at the LAX Dunes. TBF held ten community restoration events, including hosting an official Coastal Clean-up Day event, and recruited 600 volunteers. Volunteers included large groups from UCLA, AT&T, Geocaching and Meetup Groups, LMU, and local K-12 schools. TBF began exploring additional partnerships to support restoration work at the LAX Dunes and participated in meetings with a newly formed stakeholder group to support habitat restoration and monitoring associated with the federally endangered El Segundo Blue Butterfly.

Malibu Living Shoreline Project: This project, in partnership with the City of Malibu, Los Angeles County Department of Beaches and Harbors (LACDBH), and State Coastal Conservancy (SCC) aims to restore three acres of sandy beach and dune habitats at Zuma Beach and Point Dume Beach to improve coastal resiliency and increase the health of the beach systems through a living shoreline approach. During this time period, project partners continued planning and permitting discussions, community outreach, and baseline monitoring. Additionally, during this period, a consulting firm provided design services in support of the project including artistic renderings from several locations, draft restoration alternative designs, and a report in support of the development of an Implementation and Monitoring Plan. Additionally, the project was presented to visitors from US EPA in June 2019.

Los Angeles Living Shoreline Project: This innovative project, in partnership with LACDBH, State Parks, SCC, and Honda Marine Science Foundation, aims to implement a multi-habitat approach to restore approximately 3.5 acres of beach and coastal bluff habitat. This project at Dockweiler Beach directly supports a disadvantaged community and adds to SMBNEP's efforts to improve coastal resilience along the coast of Los Angeles County. It also incorporates the experimental establishment of offshore eelgrass within a one-acre footprint. During this time period, TBF started work on the grant funded by California State Coastal Conservancy; continued partnership development; began baseline monitoring in the beach habitat, potential eelgrass transplant site, and at potential eelgrass donor beds; collaborated with external scientific advisors; and advanced stakeholder engagement through announcements at several public meetings. Additionally, TBF was awarded and initiated a grant through the Honda Marine Science Foundation to supplement project monitoring and implementation.

Manhattan Beach Dune Restoration: This project aims to restore approximately 3.5 acres of foredune habitat in the City of Manhattan Beach to provide infrastructure protection and increase coastal resilience, while improving habitat quality through invasive plant removal and native plant establishment. In this time period, TBF continued partnership and concept development with LACDBH, City of Manhattan Beach, and USGS, and continued conversations with the Manhattan Beach City Council and Sustainability Task Force. Additionally, during this time period, TBF and project partners submitted a grant proposal in an effort to secure funding for the project.

Beach Monitoring: In partnership with Loyola Marymount University's Coastal Research Institute (CRI), this research project is conducting a site-suitability analysis to determine potential areas for beach restoration, evaluating factors such as recreational use, physical, and biological characteristics, while contributing information to the Comprehensive Monitoring Program. During this reporting period, Dr. John Dorsey and his internship and research assistant students continued the pilot study by adding three new monitoring beach sites to the data set and continuing analyses. Summary results were presented at the Southern California Academy of Sciences Annual Meeting, the CA Beach Water Quality Monitoring Council, McNair Scholars Conference (September), and at several events at LMU. Additionally, work began on evaluating and combining GIS layers for the site suitability analysis.

2.4 Restore rocky intertidal and subtidal habitats

This FY19 Work Plan objective supports BRP Goal 9: Restore rocky intertidal and subtidal habitats.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.4a Promote protection of rocky intertidal habitats; BRP 9.2				
Promote protection of rocky intertidal habitats	TBF	Promote	Ongoing	Continued ongoing communications with collaborators; continued indicator development for this habitat as part of SMBNEP's Comprehensive Monitoring Program
2.4b Restore and enhance rocky reef habitat; BRP 9.1				
Implement the rocky reef / kelp forest restoration project	TBF	Lead	Ongoing	Restored 1.91 acres of rocky reef (April – Sept 2019); several public presentations were given; annual report will be completed in late 2019 or early 2020; SCC initiated grant through Prop. 12 funding to restore 69 acres of lost rocky reef habitat off the Palos Verdes Peninsula
2.4c Reintroduce and restore abalone; BRP 9.3				
Maintain abalone research laboratory	TBF	Lead	Ongoing	TBF and SCMI staff monitored and maintained the lab daily; construction of a second lab was completed and is housing white abalone

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Restore abalone	TBF	Lead	Ongoing	Conducted the second juvenile red abalone outplanting off Palos Verdes using SAFEs; conducted four monitoring surveys in May, June, and July; green abalone monitoring occurred in July White abalone were transported from BML to SCMI in August; SAFEs and BARTs were deployed in September in preparation for the first white abalone outplant event scheduled for October 2019

Summary Narratives

***Palos Verdes Kelp Forest Restoration Project*:** Teams of restoration divers (SCUBA) have been clearing the ocean floor of over-populous sea urchins, thereby reducing herbivory and allowing for the natural recruitment and development of the giant kelp community. During the reporting period, 1.91 acres of reef were cleared of excess urchins. Early results from this work are apparent, including the development of a variety of macroalgae occurring on the reefs in all sites, increases in lobster density and invertebrate diversity, as well as increases in fish species richness and biomass. In some locales, giant kelp (*Macrocystis pyrifera*) has created a canopy at the surface of the ocean. In 2018, aerial monitoring conducted by the Central Region Kelp Survey Consortium described a 250% increase in kelp canopy within restored sites. The total area restored by this effort since 2013 is currently 49.36 acres.

Southern California Marine Institute Palos Verdes Restoration Reef: SCMI will implement a project to restore 69-acres of rocky reef/kelp habitat near Bunker Point off the Palos Verdes Peninsula. Approximately 70,000 tons of quarry rock from Catalina Island will be used to construct a restoration reef, designed as a set of eight “blocks”. Each block will contain three modules in various configurations. Blocks will be placed proximate to natural reef habitat and will be oriented to restore the lost features of the reef. This replicated design will allow SCMI to analyze different reef configurations and the overall contribution of the restoration habitat to the nearshore ecosystem. The project will help restore the nearshore ecological rocky-reef community, support approximately six tons of reef fishes and a proportional amount of invertebrates, and increase the abundance of commercial and recreational species, offsetting historical losses to ecosystem services. During this time period, a Proposition 12 grant agreement was executed, partially funding this project.

***Restore White Abalone*:** TBF operates and maintains two mariculture facilities located at SCMI. These spaces serve as a wet lab and hatchery for abalone rearing, experimentation, and long-term housing of broodstock. The facility is a registered aquaculturist and has been certified as “sabellid free” by CDFW for the fourth year. On 12 April 2019, a successful white abalone spawning event at Bodega Marine Lab produced 12 million larvae. Larvae were transported to 10 facilities in California and Baja Mexico. TBF received approximately 300,000 larvae that were settled in the newly constructed white abalone lab rearing troughs. Survival rates were very low for some of the fertilization crosses and success among facilities has varied. No live abalone have been observed in the troughs at SCMI at this time. In May 2019, 1,500 juvenile captive-bred red abalone were outplanted off Palos Verdes using new methods called SAFEs (Short-term Abalone Fixed Enclosures) and the site has been monitored four times during this reporting period. This location was identified to likely be successful for red and white abalone due to habitat characteristic surveys conducted by NOAA, Aquarium of the Pacific, Paua Marine Research Group, and TBF. In August 2019, 3,200 juvenile white abalone were selected for outplanting and transferred from the Bodega Marine Lab to southern California. 1,600 animals each were transported to TBF’s facility at SCMI and to NOAA’s Southwest Fishery Science Center in San Diego. Abalone were tagged to assist with tracking their parentage information and outplanting method. Animals will be outplanted using two methods within the same site, SAFE modules and BARTs (Baby Abalone Recruitment Traps) used by CDFW. In September 2019, SAFE modules were modified and redeployed and BARTs assembled in preparation for the first ever white abalone outplanting event scheduled for 22 October 2019.

3. Multidisciplinary and Integrative Programs

Due to their multidisciplinary and integrative nature, Objectives and tasks in this section of the semi-annual report are tied to and provide essential support for implementation of all goals, objectives, and milestones of the BRP including information gathering and dissemination, fund raising, and organizational management. For narrative details on each Objective and task, refer to the final FY19 Work Plan.

3.1 Promote climate change adaptation

This FY19 Work Plan objective supports BRP Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.1a Conduct climate change vulnerability assessment and policy improvements; BRP 4.5				
Conduct climate action planning for BRP revision	SMBRC, TBF	Lead	Ongoing	Used CCVA Report and products to inform development of CCMP Action Plan (released October 2018); continued work on supplemental Climate Plan appendix; developed and released draft Financial Plan to management conference in August, compiling comments continues
Participate in AdaptLA project	SMBRC, TBF	Participate	Ongoing	TBF continued outreach on coastal resiliency and living shoreline projects in conjunction with the beach restoration activities
3.1b Conduct research on local impacts of climate change; BRP 4.5 and ALL				
Implement kelp forest hydrodynamics study	TBF	Participate	Ongoing	CSUN, UC Davis, and TBF deployed instruments in Sept 2019 (oxygen sensors, temperature loggers, current meters / ADCPs) at both sites; concurrent kelp and water quality surveys were also conducted

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Monitor ocean acidification	SMBRC, TBF	Participate	Ongoing	Both sensors were sent to manufacturer for annual maintenance and re-calibration at the end of the last reporting period; the SeapHOx sensor is still at the manufacturer due to the need for refurbishment; both sensors will be redeployed in mid-November at 100 m in conjunction with a wire-walker that will continuously profile the upper 100 m of the water column

Summary Narratives

CCMP Action Plan and Climate Planning: Climate change, including climate stressors for the region such as sea level rise and drought, continue to be important drivers for planning and adaptive management actions. In 2018, SMBNEP released the Action Plan for the Comprehensive Conservation and Management Plan (CCMP), including actions related to climate change such as filling in important data gaps for our region, or prioritizing projects to increase resilience of our coastal areas such as beach and dune restorations. This Action Plan was a significant collaborative effort by SMBNEP's Management Conference, staff, and interested stakeholders and members of the public. The seven goals and 44 actions it contains represent priorities for our region, established through many workshops and consensus building activities. In August, a Draft Financial Plan was distributed to Management Conference members and publicly announced. Work continues on other components of the CCMP, such as the Comprehensive Monitoring Program in partnership with the TAC. Additionally, the framework for the Climate Action appendix to the CCMP was initiated.

3.2 Conduct public outreach and increase collaborations

This FY19 Work Plan objective supports all the BRP Goals through one or more elements of communication as part of outreach efforts. Specifically, Goals 2, 6, and 14 are directly facilitated by various communication strategies.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.2a Create and manage communications; BRP – ALL				
Conduct SMBNEP outreach and communications	SMBRC, TBF	Lead	Ongoing	Released three press releases; 41 media items published; responded to media questions
Attend conferences	TBF	Participate	Ongoing	TBF staff and six CRI internship students presented four posters at the Southern California Academy of Sciences Annual Meeting in May 2019; one CRI graduate student mentored by TBF and CRI staff presented the results of his Masters study on the fate of metals in plants at the Culver City Rain Garden
3.2b Coordinate the internship and volunteer program; BRP Goals 6, 7, 8, 9				
Implement the internship and volunteer program	TBF	Lead	Ongoing	During this period, TBF hosted 14 community restoration events and recruited 658 volunteers and interns; TBF held two official National Estuary Week events at the Ballona Wetlands Ecological Reserve; additionally, TBF tabled events including Coastal Cleanup Day at the LAX Dunes and on Santa Monica Beach (Sept 21)

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.2c Participate in and provide technical support to stakeholder groups; BRP – ALL				
Participate in stakeholder groups involved in BRP implementation	SMBRC, TBF	Participate	Ongoing	Continued ongoing participation in regional and state stakeholder groups such as the California Water Quality Monitoring Council committees, and the Greater Farallones Kelp Recovery Group

Summary Narratives

Press and Media Communications: TBF and SMBRC continue efforts to reach out and generate local, regional, and national media coverage in various forms. Three TBF press releases were written and distributed, with thirteen media pieces delivered, including print and online articles, radio and TV interviews. Media highlights included a TBF roundup piece by Loyola Marymount University's paper, a lead mention of our engagement in ReThink Disposable program, Courthouse News highlighting Tom Ford's congressional testimony, a LAX Dunes local TV news story, and local NPR station/web story on Santa Monica dunes restoration project (radio version starts at 25:38, print version). There were additional media published beyond the nine that included re-postings of press releases (6), listings of events in larger newsletters (19), and references to TBF programs or announcements (3).

Internship and Volunteer Program: TBF continued to host multiple community restoration events per month at sites that included Malibu Lagoon, Culver City Rain Garden, LAX Dunes, and the Ballona Wetlands Ecological Reserve. These events offer hands-on restoration and stewardship opportunities for volunteers and interns. Additionally, tabling and outreach events like Coastal Cleanup Day at multiple locations provided opportunities for interns to interact with the community and share the work of TBF and SMBNEP. Additional work continued through the implementation of CRI research projects (e.g., see tasks under Objectives 1.2a and 2.3b, above, and 3.3b, below).

3.3 Support planning, monitoring, and organizational management

This FY19 Work Plan objective is broad and supports all BRP Goals.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.3a Seek and increase funding for BRP implementation; BRP – ALL				
Conduct BRP / CCMP Revision	SMBRC, TBF	Lead	Ongoing	Continued process to evaluate current structure and governance of SMBNEP; released preliminary survey at one workshop and used it to inform the development of an online public e-survey; received and compiled 43 responses: final report from the independent contractor was accepted and distributed in June 2019; SMBRC began working on a draft MOU; Draft Finance Plan was submitted to the Governing Board for review in September and comments were compiled

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Seek and increase funding to support BRP implementation	SMBRC, TBF	Lead	Ongoing	Applied for and received grant from Patagonia for Single Use Disposable Products Reduction Initiative; applied for and received EPA Environmental Justice grant for Table to Farm compost and garden project; applied for and received staff approval from SCC for the Manhattan Beach Dune Restoration Project (calendared for bringing to SCC board in January); initiated three-year contract with Los Angeles World Airports for services relating to habitat restoration at the LAX Dunes; initiated SCC grant and Honda grant for the LA Living Shorelines Project; began planning for TBF's annual fundraiser, Coastal Connections 5
3.3b Monitor and report on the Bay's environmental condition; BRP 4.7, 10.1 and ALL				
LMU's Coastal Research Institute	TBF	Co-Lead	Ongoing	Began the six faculty Fellows research programs for summer and academic year 2019/20; student interns completed posters; continued development of draft MOU with the university; worked to update the CRI website; initiated meetings to begin several new research directions in support of filling data gaps identified in the CCMP and the Comprehensive Monitoring Program; eight students working on research for units during the school year (Fall 2019 semester)

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Update CMP and plan for next SotB Report	SMBRC, TBF	Lead	Ongoing	Conducted several conference calls and meetings with TAC habitat subgroups to move forward with indicator development; coordinated a TAC meeting on 17 July focused on CMP development

Summary Narratives

LMU's Coastal Research Institute: LMU's Coastal Research Institute (CRI) brings together expertise from Loyola Marymount University's Frank R. Seaver College of Science and Engineering and TBF to restore and enhance Santa Monica Bay and local coastal waters. CRI contributes to a better understanding of global urban coastal resource management through the execution of projects that stem from work of SMBNEP, guided by the Comprehensive Conservation and Management Plan. In summer 2019, CRI expanded further with six Faculty Fellowships and 14 paid undergraduate internships. Additionally, CRI had another 21 students working on research in summer 2019, including three graduate students. In summer 2019, there were an additional eight high school students participating in the near-peer mentoring internships experience with CRI. The following seven programs encompass the reporting period research directions: intertidal microplastics research, beach characterization studies, modeling coastal climate stressors and adaptation strategies, native plant microbe interaction research, eelgrass and seafood genetics research, marine invertebrate physiology research, and habitat restoration and monitoring. Each research direction aims to answer multiple research questions. During this project period, several deliverables were produced including seven presentations, four posters, one draft manuscript for publication, one summary report, and additional pictures and data compilations.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.3c Support organizational management; BRP – ALL				
BRP tracking	SMBRC, TBF	Lead	Ongoing	Continued to work to develop cross-coordination with new CCMP Action Plan (October 2018); completed final Work Plan for FY20; completed NEPORT report to USEPA; completed this semi-annual report
Prop. 50 Grants	SMBRC	Lead	New	TAC subgroup continued work towards refining Proposition 50 funding priorities; TAC developed a draft recommendations memorandum for future presentation to the Governing Board
Prop. 12 Grants	SMBRC, TBF	Participate	New	SMBRC approved the disbursement of Prop. 12 funds (Dec); In March 2019, SCC authorized the disbursement for 10 projects that implement the Bay Restoration Plan (CCMP) (additional project details in narratives)
Board and Committee Support	SMBRC, TBF	Lead	Ongoing	TBF BOD met in May and August 2019; SMBRC GB met in April and June (August meeting was cancelled) 2019; SMBRC EC met in May, July, and Sept 2019; TAC met in July 2019; SMBRA GB met in July 2019

Summary Narratives

Proposition 12 Projects: In addition to the Prop. 12 projects described under Tasks 1.1a, 2.2a, and 2.4b, the following projects were recommended by the Governing Board, and approved for funding by SCC:

- *Palos Verdes Peninsula Land Conservancy Abalone Cove Habitat Restoration* – This project will implement an existing habitat restoration plan on 13-acres at Abalone Cove Reserve. The restoration includes the removal of invasive trees, shrubs, and herbaceous plants; the propagation of native plant species and desired quantities; irrigation and planting specifications; maintenance schedule; and monitoring and reporting protocols.

    - *Status update:* Grant agreement executed with approval to start work October 2019.

- *Mountains Recreation and Conservation Authority (MRCA) Carbon Canyon Acquisition Project* – The project entails the acquisition in fee of 91 acres of undeveloped land in Carbon Canyon, outside of Malibu. MRCA will own and operate the land in perpetuity. The project will permanently protect 91 acres of open space and habitat in the Santa Monica Mountains, preserving habitat and wildlife corridors, preventing development, preserving the scenic viewshed, and increasing public access to recreation.

    - *Status update:* Grant agreement is in development.

- *Resource Conservation District of the Santa Monica Mountains Topanga Lagoon Restoration Planning* – In partnership with State Parks, the project will advance the planning effort for the restoration of Topanga Lagoon. The Topanga State Park General Plan (2012) identified the lagoon and adjacent wetland restoration as a key action item. The goal of this project is to build on the Topanga Creek Watershed and Lagoon Restoration Feasibility Study (2002), Topanga Lagoon Preliminary Soil Investigation (2003), and the Topanga Lagoon Bridge Replacement and Lagoon Restoration study (2004) to produce conceptual restoration alternatives for Topanga Lagoon. The project will review existing data and conduct technical studies to inform restoration design; develop ecosystem restoration and public access goals and objectives with input from a technical advisory committee and public stakeholders; and develop three conceptual restoration alternatives to restore ecological function, increase resiliency to sea level rise and climate change, and enhance the visitor experience.

    - *Status update:* Grant agreement was executed. Work began in August 2019 with completion of RFP selection for consultant.